

CLAIM AMENDMENTS

IN THE CLAIMS

This listing of the claims will replace all prior versions, and listing, of claims in the application or previous response to office action:

1-21. (Cancelled)

22. (Previously Presented) A portable, high-efficiency liquid oxygen (LOX) storage/delivery apparatus, comprising:

a portable LOX container;

a portable-unit LOX transfer connector connected to said portable container and capable of receiving and transferring LOX to said portable container;

an economizer valve for minimizing venting by balancing gaseous and liquid oxygen withdrawal from said portable LOX container; and

a conserving device;

a portable-unit oxygen gas transfer connector for transferring oxygen gas to an oxygen gas delivery device for delivery;

said portable LOX container being configured to hold about one pound of LOX when fully charged with LOX; and

wherein said LOX storage/delivery apparatus can last approximately 10 hours at a typical patient use rate of about 2 liters per minute.

23. (Previously Presented) The apparatus of claim 22, wherein said economizer valve opens to allow oxygen gas from a gaseous head-space in said portable LOX container to pass through when the pressure of said oxygen gas in said portable LOX container exceeds a predetermined threshold level and otherwise is closed and allows oxygen gas from evaporated LOX to pass through.

24. (Previously Presented) The apparatus of claim 23, further comprising a liquid withdrawal conduit and a gaseous withdrawal conduit which are in communication with the interior of said container.

25. (Previously Presented) The apparatus of claim 24, wherein an inner diameter of said liquid withdrawal conduit is sized so that when said economizer valve is open, gaseous flow from the head-space of said portable LOX container is preferred over flow through said liquid withdrawal conduit.

26. (Previously Presented) The apparatus of claim 24, further comprising at least one of a liquid withdrawal warming coil and a gaseous withdrawal warming coil.

27. (Previously Presented) The apparatus of claim 26, wherein an inner diameter of said liquid withdrawal warming coil is greater than the inner diameter of said liquid withdrawal conduit.

28. (Previously Presented) The apparatus of claim 23, wherein said economizer valve further comprises a relief valve.

29. (Previously Presented) The apparatus of claim 22, further comprising a vent valve.

30. (Previously Presented) The apparatus of claim 29, wherein said vent valve may be open during filling of said portable LOX container.

31. (Previously Presented) The apparatus of claim 22, further comprising a demand flow control device for adjustment of gas flow through said portable-unit oxygen gas transfer connector.

32. (Previously Presented) The apparatus of claim 22, wherein said oxygen gas delivery device is a multi-lumen annular conduit.

33. (Previously Presented) The apparatus of claim 22, further comprising an inter-unit oxygen gas transfer connector.

34. (Previously Presented) The apparatus of claim 33, further comprising a check valve to prevent backflow of gaseous oxygen through said inter-unit oxygen gas transfer connector.

35. (Previously Presented) The apparatus of claim 22, further comprising a conserving device.

36. (Canceled)

37. (Previously Presented) The apparatus of claim 22, wherein said apparatus weighs 3 to 5 pounds when said portable LOX container is fully charged with LOX.

38. (Previously Presented) The apparatus of claim 22, wherein said apparatus can last at least approximately 10 hours at a gas withdrawal rate of about 2 liters per minute.

39. (Previously Presented) The apparatus of claim 22, wherein said apparatus can deliver a gas withdrawal rate of about 2 liters per minute with a LOX use rate up to about 1/12 pounds per hour.

40. (Currently Amended) A portable, high-efficiency liquid oxygen (LOX) storage/delivery apparatus, comprising:

- a portable LOX container;
- a portable-unit LOX transfer connector connected to said portable container and connectable to a main source of LOX for transferring LOX to said portable container;
- a liquid withdrawal conduit connected to a liquid withdrawal warming coil, said liquid withdrawal warming coil located externally of said portable LOX container;
- a gaseous oxygen withdrawal conduit;
- an economizer valve for minimizing venting by balancing gaseous and liquid oxygen withdrawal from said portable LOX container;
- a demand flow control device;
- a portable-unit oxygen gas transfer connector for transferring oxygen gas to an oxygen gas delivery device for delivery; and**
- a conserving device for LOX conservation which provides oxygen gas to said portable-unit oxygen gas transfer connector, said conserving device integrated into said LOX storage/delivery apparatus and connected to said demand flow control device; **and**
- a portable-unit oxygen gas transfer connector for transferring oxygen gas to an oxygen gas delivery device for delivery.**

41. (Previously Presented) The apparatus of claim 40, wherein said conserving device stops a flow of oxygen gas to said delivery device when a patient exhales.

42. (Previously Presented) The apparatus of claim 41, wherein oxygen gas accumulates in said conserving device when the patient exhales.

43. (Previously Presented) The apparatus of claim 42, wherein a puff of oxygen gas is delivered to said delivery device from said conserving device when the patient inhales.

44. (Previously Presented) The apparatus of claim 43, wherein said conserving device delivers an even flow of oxygen gas to said delivery device after said puff and until the patient exhales again.

45. (Previously Presented) The apparatus of claim 40, wherein said conserving device is pneumatic.

46. (Previously Presented) The apparatus of claim 40, wherein said conserving device is electric.

47. (Previously Presented) The apparatus of claim 46, wherein said conserving device is powered by at least one battery.

48. (Previously Presented) The apparatus of claim 46, wherein said conserving device delivers puffs of oxygen gas.

49. (Previously Presented) The apparatus of claim 40, further comprising a demand flow control device for adjustment of gas flow from said container to said delivery device.

50. (Previously Presented) The apparatus of claim 49, wherein said demand flow control device is coupled to said conserving device.

51. (Previously Presented) The apparatus of claim 40, further comprising an inter-unit oxygen gas transfer connector.

52. (Previously Presented) The apparatus of claim 51, wherein said inter-unit oxygen gas transfer connector delivers oxygen gas to said conserving device.

53. (Previously Presented) The apparatus of claim 51, further comprising a check valve to prevent backflow of gaseous oxygen through said inter-unit oxygen gas transfer connector.

54. (Previously Presented) The apparatus of claim 40, further comprising a gas withdrawal warming coil.

55. (Previously Presented) The apparatus of claim 54, further comprising an economizer valve for minimizing vending by balancing gaseous and liquid withdrawal from said portable LOX container for delivery to said conserving device.

56. (Previously Presented) The apparatus of claim 40, wherein said economizer valve opens to allow oxygen gas from a gaseous head-space in said portable LOX container to pass through when the pressure of said oxygen gas in said portable LOX container exceeds a predetermined threshold level and otherwise is closed and allows oxygen gas from evaporated LOX to pass through.

57. (Previously Presented) The apparatus of claim 55, further comprising at least one of a liquid withdrawal warming coil and a gaseous withdrawal warming coil.

58. (Previously Presented) The apparatus of claim 40, wherein an inner diameter of said liquid withdrawal warming coil is greater than an inner diameter of said liquid withdrawal conduit.

59. (Previously Presented) The apparatus of claim 40, further comprising a portable-unit primary relief valve.

60. (Previously Presented) The apparatus of claim 40, further comprising a vent valve.

61. (Previously Presented) The apparatus of claim 60, wherein said vent valve is may be open during filling of said portable LOX container.

62. (Previously Presented) The apparatus of claim 40, wherein said oxygen gas delivery device is a multi-lumen annular conduit.

63. (Previously Presented) The apparatus of claim 40, wherein said apparatus weighs 2 to 4 pounds empty.

64. (Previously Presented) The apparatus of claim 40, wherein said apparatus weighs 3 to 5 pounds when said portable LOX container is fully charged with LOX.

65. (Previously Presented) The apparatus of claim 40, wherein said apparatus can last at least approximately 8 hours at a gas withdrawal rate of about 2 liters per minute.

66. (Previously Presented) The apparatus of claim 40, wherein said apparatus can deliver a gas withdrawal rate of about 2 liters per minute with a LOX use rate of up to about 1/10 pounds per hour.